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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: William P. Addiego, et al.

Serial No: 10/611,508

Filed: 6/30/2003

Title: Metal Oxide Catalysts

Examiner: Cam N. Nguyen

Group Art Unit: 1754

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is one (1) copy of an Appeal Brief (8 pages) in the above-identified application.


Please charge any fee due, or any other fees due in connection with the submittal of this Brief under 37 C.F.R. §1.17(c) to Deposit Account No. 03-3325.

Applicants believe that a one month extension of time under 37 C.F.R. §1.136 is necessary to make this Reply timely. Authorization is given by Corning Incorporated to charge the appropriate fees and any additional fees necessary due in connection with this filing to Deposit Account No. 03-3325.

Respectfully submitted,

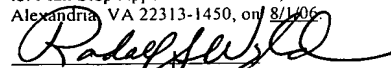
Dated: August 1, 2006

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CERTIFICATE OF MAILING (37 CFR 1.8a)

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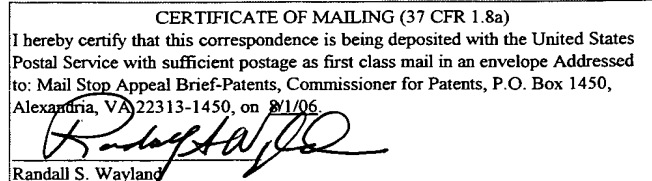
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**BRIEF ON APPEAL**

This Brief supports the appeal to the Board of Patent Appeals and Interferences from the final rejection dated November 02, 2005, in the application listed above. Appellant filed an after final response on February 02, 2006. Appellant then filed the Notice of Appeal on May 01, 2006. Appellant submits this Brief On Appeal as required by 37 C.F.R. § 1.192(a).

**I. REAL PARTY IN INTEREST**

The real party in interest in this appeal is Corning Incorporated, assignee of the entire interest in this application by virtue of an assignment recorded 06/30/2003 at Reel/ Frame 0142276/0396.

**II. RELATED APPEALS AND INTERFERENCES**

With respect to prior or pending appeals, interferences or judicial proceedings, there are no such appeals, interferences or judicial proceedings known to Appellant, Appellant's legal representative or Appellant's assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**III. STATUS OF CLAIMS**

Claims 1 – 19 were finally rejected in the Final Office Action dated November 2, 2005. Claims 1 – 19 are the pending claims that are the subject of this Appeal and are set forth in the attached Appendix. Claims 20-37 have been canceled as a result of entry of the after final amendment.

#### **IV. STATUS OF AMENDMENTS**

There has been an amendment filed on 2/02/06 subsequent to final rejection, requesting cancellation of claims 20-37. This amendment canceling claims 20-37 has been entered, as indicated in the Advisory Action dated 3/29/06.

#### **V. SUMMARY OF CLAIMED SUBJECT MATTER**

Claim 1 relates to a supported catalyst. In particular, the supported catalyst comprises a solid support, and a porous coating on the solid support (page 3, para. [0010]). The porous coating has as a major constituent, a catalytically active material (page 3, para. [0019]). The catalytically active material includes a transition-metal containing material (page 4, para. [0013]), and further includes a binder functioning to hold the coating together and adhere the coating to the support. (Page 3, para. [0010]).

Claim 13 relates to a bulk transition metal-containing material catalyst comprising a porous solid mass (page 6, para. [0022]) having as a major constituent a transition metal oxide (page 4, para. [0015]; page 4, para. 0013]), the solid mass having a binder (page 4, para. [0016]) for holding the catalytically active material together in the solid mass (page 2-3, para. [0007]).

#### **VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

Claims 1 – 3, 5-7, 10-14 and 17-19 stand finally rejected under 35 U.S.C. §102(e) as being anticipated by **Davies et al. (US 6,793,728)**.

Claims 4, 8-9 and 15-16 stand finally rejected under 35 U.S.C. §103(a) as being unpatentable over **Davies et al. (US 6,793,728)** as applied in claims 1-3, 5-7, 10-14 and 17-19 and in further view of **Birkenstock (US 4,407,733)**.

#### **VII. ARGUMENT**

The rejection of claims 1 – 3, 5-7, 10-14 and 17-19 under 35 U.S.C. §102(e) as being anticipated by Davies et al. (US 6,793,728) is improper.

Applicants respectfully request reversal of the rejection of claims 1 – 3, 5-7, 10-14 and 17-19 under 35 U.S.C. § 102(e) as being anticipated. Applicants assert that all dependent claims stand or fall with the independent claims from which they depend.

Davies directed to an impermeable and sacrificial primer coating paint layer which includes zinc powder or alloy. The primer paint is for application on a ship's hull for the

purpose of protecting the steel hull by promoting a galvanic reaction. The zinc may also form galvanic reaction products (see Col. 4, lines 39-42). Anticipation under 35 U.S.C. Section 102(e) requires "each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. Verdegaal Bros., Inc. v. Union Oil Co., 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). All of the elements of claim 1 are not found in Davies et al. In particular, the primer coating paint layer is not a "material exhibiting catalytic activity" as required in claim 1, or a "catalytically active material" as required in claim 13.

Catalyst, as defined in Hackh's Chemical Dictionary, 4<sup>th</sup> Edition, is a substance that changes the speed of a reaction, but which is present in its original concentration (*emphasis added*) after the reaction. Accordingly, the form of zinc (whether pure zinc or a zinc alloy) used in US 6,793,728 is not a catalyst, i.e., it does not function as reaction promoter with its concentration remaining unchanged after the reaction. In particular, the only purpose disclosed in Davies for the Zinc is for protecting the steel by a galvanic mechanism. To do so, some portion of the zinc present is sacrificial, i.e., is reacted thus its concentration does not remain unchanged. Accordingly, contrary to Examiner's assertion, the primer coating paint layer is not a "material exhibiting catalytic activity."

Furthermore, claims 1 and 13 include the limitation that the material is "porous." Davies '728 does not teach a "porous material." Instead, it teaches that the interstices between the zinc particles be filled to create a solid paint layer (see Col. 5, lines 4-6). Paints, by their very nature, are nonporous. They are present to form an impermeable layer which protects the substrate. In fact, if the paint layer were porous, then its function as a corrosion inhibitor would be destroyed. In short, if the paint layer were porous, the salt water could penetrate to the steel hull and corrode it. Accordingly, Davies does not teach a porous material. Therefore, Davies '728 does not anticipate the claimed invention, as it does not include all the claimed limitations of claim 1 or 13, and, in particular, it does not teach or suggest a *porous coating or mass*. Dependent claims 2-3, 5-7, 10-12, 14 and 17-19 are not anticipated for at least these reasons. Accordingly, the 102(e) rejection should be overturned.

The rejection of claims 4, 8-9 and 15-16 under 35 U.S.C. §103(a) as being unpatenable over Davies et al. (US 6,793,728) as applied in claims 1-3, 5-7, 10-14 and 17-19 and in further view of Birkenstock (US 4,407,733) is also improper.

Birkenstock does nothing to remedy the basic deficiencies of Davies '728. For the reasons stated above, Davies does not teach a either a catalyst or a porous coating or porous solid mass. Instead, Davies teaches a solid protective paint layer including sacrificial zinc or zinc alloy. A person of ordinary skill in the art, posed with the problem of creating an improved catalyst material would not look to Davies, a paint, for guidance. Not only is it non-analogous art, but it simply offers no suggestion or motivation, whatsoever, of how to make a highly effective porous catalyst coating. Accordingly, none of the present claims are rendered obvious by the combination of Davies and Birkenstock. As such, the obviousness rejection should be overturned.

Respectfully submitted,



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Corning, NY 14831

Date: August 1, 2006

### **VIII. CLAIMS APPENDIX**

The claims on appeal are as follows:

#### **Listing of the Claims:**

1. **(Rejected)** A supported catalyst, comprising:  
a solid support; and  
a porous coating on the solid support, the porous coating having as a major constituent a material exhibiting catalytic activity, the material exhibiting catalytic activity including a transition-metal containing material, the porous coating having a binder for holding the coating together and adhering the coating to the support.
2. **(Rejected)** The supported catalyst of claim 1, wherein the transition metal-containing material includes an oxide of a transition metal.
3. **(Rejected)** The supported catalyst of claim 2, wherein the transition metal is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, yttrium, zirconium, niobium, molybdenum, palladium, silver, tantalum, tungsten, bismuth, antimony, tin, zinc, cerium and lanthanum.
4. **(Rejected)** The supported catalyst of claim 3, wherein the transition metal is selected from the group consisting of nickel, cobalt, iron, molybdenum, tungsten and chromium.
5. **(Rejected)** The supported catalyst of claim 1, wherein the solid support is inert or catalytically active.
6. **(Rejected)** The supported catalyst of claim 5, wherein the support is inert.
7. **(Rejected)** The supported catalyst of claim 6, wherein the inert solid support is made of a material selected from the group consisting of a metal, glass, ceramic or glass-ceramic material.
8. **(Rejected)** The supported catalyst of claim 7, wherein the inert solid support is comprised

of alumina, titania or silica.

9. **(Rejected)** The supported catalyst of claim 5, wherein the solid support is in the form of a bead, a pellet, a monolithic honeycomb, or a reticulated foam.

10. **(Rejected)** The supported catalyst of claim 1, wherein the binder is a condensed silica-containing and/or alumina-containing compound.

11. **(Rejected)** The supported catalyst of claim 1, wherein the binder includes an alkoxysilane.

12. **(Rejected)** The supported catalyst of claim 8, wherein the alkoxysilane is tetraethylorthosilane.

13. **(Rejected)** A bulk transition metal-containing material catalyst, comprising:  
a porous solid mass having as a major constituent a transition metal oxide, the solid mass having a binder for holding the catalytically active material together in the solid mass.

14. **(Rejected)** The bulk catalyst of claim 13, wherein the transition metal oxide is selected from the group consisting of scandium, titanium, vanadium, chromium, manganese, iron, cobalt, nickel, copper, yttrium, zirconium, niobium, molybdenum, palladium, silver, lanthanum, tantalum, tungsten, bismuth, antimony, tin, zinc, cerium and lanthanum.

15. **(Rejected)** The bulk catalyst of claim 13, wherein the transition metal oxide is selected from the group consisting of nickel, cobalt, iron, molybdenum, tungsten and chromium.

16. **(Rejected)** The bulk catalyst of claim 13, which is in the form of beads, pellets, or a monolithic honeycomb.

17. **(Rejected)** The bulk catalyst of claim 13, wherein the binder is a condensed silicon-containing and/or alumina-containing compound.

18. **(Rejected)** The bulk catalyst of claim 13, wherein the binder includes an alkoxysilane.

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19. **(Rejected)** The bulk catalyst of claim 18, wherein the alkoxysilane is tetraethylorthosilane.

20. - 37. **(Canceled)**



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**IX. EVIDENCE APPENDIX**

None

**X. RELATED PROCEEDINGS APPENDIX**

None